

REMARKS

Claims 1-10, 13-15, 17-23, 26-31, 40-45, 47-55, 58-67, 69, and 75-76 are now pending in the application. Claims 1, 5, 6, 9, 10, 18-22, 26, 27, 40, 43-45, 47, 49, 58, and 69 are currently amended. Claims 24, 25, 32, 33, 46, 56, 57, 68, and 70-74 are cancelled by this amendment. Claims 75 and 76 are added as new. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

CLAIM OBJECTIONS

Claim 18 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and cannot depend from any other multiple dependent claims. Applicant notes that Claim 18 erroneously recites that Claims 1 and 2 are directed to OVPN systems and Claims 3 to 7 are directed to an OVPN terminating device. That is, Claims 1, 3, and 5 are directed to OVPN systems and Claims 2, 4, 6, and 7 are directed to OVPN terminating devices. In view of the Examiner's assertion, Claim 18 has been amended so as not to refer to Claims 3, 4, 5, 6, and 7. Thus, Claim 18 has is in proper form.

Claims 23, 25 and 33 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Objections to these claims are overcome for the reasons set forth below.

Regarding Claim 23, it appears that Claim 23 is objected to because Claim 23 is dependent on objected Claim 18. Thus, Claim 23 has not been amended. Applicant

believes that the objection to Claim 23 would be withdrawn if the objection to Claim 18 is overcome.

Claims 25 and 33 are cancelled and, therefore, the objection as to these claims should be rendered moot.

Applicant is advised that should claims 26, 48, 40, 58, and 70 be found allowable, claims 33, 57, 47, 69, and 74 will be objected to, respectively, under 37 CFR 1.75 as being substantial duplicates thereof. Claims 33 and 57 are cancelled, claims 47 and 69 have been amended, and new Claims 75 and 76 have been added. As will be explained later, Claims 70 and 74 have been cancelled. Therefore, reconsideration and withdrawal of these objections rejection are respectfully requested.

REJECTION UNDER 35 U.S.C. § 112

Claims 9, 10, 21, 25, 32, 56, and 57 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention.

In view of the Examiner's assertion, Claim 9 has been amended so as not to refer to Claim 2. As a result, Claim 9 becomes an independent claim.

Claim 9 has also been amended so as to more clearly define that converting sections which are provided in the collective converting device of Claim 9 are commonly used by a plurality of OVPN terminating devices each of which does not have sections corresponding to the converting sections. Support for this amendment can be found, for example, in the explanation in the specification related to the fifth embodiment and FIG. 10.

Applicant notes that Claim 21 erroneously refers to the OVPN system and the OVPN terminating device according to Claim 9 which is in fact directed to a collective converting device. Claim 21 has been amended so as to refer to Claim 19 directed to an OVPN system. Claim 21 has also been amended to address the other concerns raised by the Examiner.

The purport of Claims 32 and 56 is similar to that of Claim 9. However, if these claims are amended in the same manner as Claim 9, the scope of Claims 32 and 56 become substantially the same as that of Claim 9. Therefore, Claims 32 and 56 have been cancelled. Claim 57 has also been cancelled.

Accordingly, reconsideration and withdrawal of these rejections are respectfully requested.

MISCELLANEOUS AMENDMENTS

Claims 1, 5, 6, 18, 19-22, 26, 27, 40, 49, and 58 have been amended so as to correct minor editorial errors. For example, the registering section of Claim 27 has been amended so as to conform to the recitation of the generating section of Claim 27. Regarding the amendments of Claims 5, 6, 43-47, and 58, please also refer to the explanation with respect to the Rejection under 35 U.S.C. §103.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-4, 7-10, and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 1229692 (hereinafter called the '692 reference) in view of Morinaga (U.S. Pat. No. 6,785,263 B1; "Morinaga") and Oguchi (U.S. Pub. No. 2002/0067725 A1; "Oguchi"). This rejection is respectfully traversed.

The OVPN terminating device provided in the OVPN system of Claim 1 and the OVPN terminating device of Claim 2 each notifies contents of registration (i.e., a first signal format type used in a user's device, an IP address of the user's device, and a VPNID) to another OVPN terminating device which controls the same VPNID as that of the user's device.

As a result, it is possible to synchronize the registration contents between these OVPN terminating devices which control the same VPNID (page 3, last paragraph, to page 4, first paragraph, of the specification).

Regarding such a feature, the Examiner points out paragraphs [0065], [0067], [0083], [0085], and [0143] of Oguchi. However, these paragraphs of Oguchi merely disclose the technical idea of exchanging routing information among virtual routers which have the same VPNID to thereby generate routing tables.

The Examiner might consider that since Oguchi discloses exchanging certain information as well as an IP address and a VPNID, the invention as recited in Claims 1 and 2 would have been obvious if such a technical idea of Oguchi is combined with Morinaga and '692.

However, Oguchi fails to mention the claimed registered contents other than the IP address and the VPNID (i.e., the first signal format type used in the user's device), let alone disclose or suggest the technical idea of exchanging such a signal format type.

Moreover, unlike routing information, which is used for performing routing in routers provided in a network, the transmission format of Morinaga is information which is used only at a calling side (e.g., column 5, line 60, to column 6, line 6, and column 7, lines 45-59, pointed out by the Examiner). Even one having ordinary skill in the art would not have been conceived to notify another device (e.g., a device at a destination/reception side) of such information unless specific reasons exist. In addition, Morinaga, Oguchi, and '692 fail to disclose or suggest such specific reasons. Therefore, it is respectfully submitted that Claims 1 and 2, along with claims depending therefrom, defines patentable subject matter over this combination of references.

With regard to claims 3 and 4, the Examiner further points out column 5, lines 42-47 and lines 53-56, of Morinaga. However, these additional portions of Morinaga merely disclose the technical idea of exchanging signals between a central office line board 40 and a circuit exchange PBX1 and the technical idea of exchanging signals between a LAN circuit driver 37 and a LAN.

In contrast, in the invention as recited in Claims 3 and 4, when a calling connection request arrives from a user's device, an OVPN terminating device at a transmission side notifies another OVPN terminating device which controls a device that receives the calling connection request of the registered contents (i.e., the same as those set forth above with respect to Claims 1 and 2), and the other OVPN terminating device refers to the registered contents and selects the first signal format which is used

in the device that receives the calling connection request. Additionally, in response to this notification, the other OVPN terminating device transmits the first signal format type information which is used in the device that receives the calling connection request, and the OVPN terminating device at the transmission side selects the first signal format type which is used in the user's device according to this signal format type information.

As a result, both the transmission side and the reception side can select signal formats used by the transmission side and the reception side, respectively, while taking signal formats that can be used by the opposite party (i.e., the reception side and the transmission side, respectively) into consideration.

Even referring to the portions pointed out by the Examiner, neither '692, Morinaga, nor Oguchi discloses or suggests such a technical idea of the invention as recited in Claims 3 and 4. In addition to the reasons set forth in relation to claims 1 and 2, claims 3 and 4 are patentable over the cited references for these additional reasons.

As discussed above, Claim 9 has been rewritten into independent form. In the invention as recited in Claim 9, a plurality of converting sections provided in the collective converting device are commonly used by a plurality of OVPN terminating devices which are not provided with sections for converting the first signal format and the second signal format alternately.

As a result, it is not necessary to dispose a converting section for performing the converting operation in the OVPN terminating device. Therefore, it is possible to simplify the structures of the own OVPN terminating device and an OVPN system in which a plurality of OVPN terminating devices are provided, with a reduced cost (e.g., page 18, sixth paragraph, of the specification).

The Examiner cites the reasons for rejection related to Claim 2, which is referred to by original Claim 9, and points out column 5, line 60, to column 6, line 6, and column 7, lines 45-59, of Morinaga. However, as explained above, these portions of Morinaga merely mention the settings of data communication methods. In addition, '692 cited with respect to Claim 2 merely discloses the technical idea of mapping client signals into an OTU or an OPU. Therefore, the portions pointed out by the Examiner do not disclose or suggest the foregoing feature of the invention as recited in Claim 9.

Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Morinaga, Oguchi, and Zboril (U.S. Pub. No. 2003/0117945 A1; "Zboril"). This rejection is respectfully traversed.

Claims 5 and 6 have been amended so as to conform to the third embodiment (FIG. 8) of the present application by replacing "user's own device" with "own OVPN terminating device." The Examiner points out paragraphs [0130], [0156], and [0158] of Zboril in addition to the portions pointed out with respect to Claims 1 and 2. However, these additional portions of Zboril merely disclose the technical ideas of transmitting idle cells on inactive links, inserting idle cells when no data cells are available, and transmitting a frame containing idle cells 200 (FIG. 6).

In contrast, in the invention as recited in Claims 5 and 6, when a calling connection request arrives from a user's device, the OVPN terminating device notifies another OVPN terminating device of registered contents, selects a first signal format type which can be commonly handled by the own OVPN terminating device and the other OVPN terminating device, retrieves information indicating a vacancy of converting sections corresponding to this first signal format type both in the own OVPN terminating

device and the other OVPN terminating device, and selects either one of the converting sections which is not occupied for the own OVPN terminating device and the other OVPN terminating device.

As a result, it is possible to select the signal format type in which there is a vacancy for the signal converting resource both in the transmitting device (i.e., the own OVPN terminating device) and the receiving device (i.e., the other OVPN terminating device), and thus a failure in the communication can be avoided and the optimum resource can be obtained by performing a negotiation between the transmitting device and the receiving device (page 4, last paragraph, to page 5, first paragraph, of the specification).

The Examiner asserts that "When no data cells are available on a data link 120 (Zboril, FIG. 3), this indicates that at least a Transmit Formatter (Zboril, FIG. 3, item 106) is not processing and transmitting data cells over a data link 120 and, as a result, is substantially the same as a "vacancy of a section for an operation" of Claims 5 and 6 of the Application" (page 102, second paragraph, of the Office Action).

However, the transmission formatter 106 of Zboril merely inserts link-by-link flow control information (paragraph [0073]). The structure of the formatter 106 of Zboril is entirely different from the claimed converting sections. Therefore, Zboril neither discloses nor suggests the technical idea of the invention as recited in Claims 5 and 6 which determines the vacancy of converting sections both in the transmitting device and the receiving device and uses a converting section which is not occupied for the transmitting device and the receiving device.

Applicant points out that the Examiner reads the claimed converting section and the claimed converting operation as merely "a section" and "an operation," respectively. However, such an interpretation is improper because the Examiner overlooks the limitation of "converting." Therefore, it is respectfully submitted that Claims 5 and 6, along with claims depending therefrom, defines patentable subject matter over this combination of references.

Claims 13, 22, 23, and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Newell (U.S. Pat. No. 6,668,319 B1; "Newell") and French (U.S. Pub. No. 2003/0041167 A1; "French"). This rejection is respectfully traversed.

The invention as recited in Claim 13 detects whether or not there is a converting section corresponding to the first signal format type, generates an IP address and a VPNID to a user's device if the corresponding converting section exists, and notifies the user's device of a first signal format type information which corresponds to a vacant converting section if the corresponding converting section does not exist.

As a result, even if the signal format with which a user wants to connect to the OVPN cannot be used in the OVPN, it is possible to avoid generating and registering an invalid IP address and VPNID, and thus an invalid signaling process for the OVPN operation can be omitted (page 10, penultimate paragraph, of the specification). Moreover, it is possible to shorten a time for the user to stand-by who wants to communicate by using the vacant network resource effectively (page 14, penultimate paragraph, of the specification).

Regarding such a feature, the Examiner points out column 4, lines 11-27, of Newell and paragraphs [0227] and [0275] of French.

However, this portion of Newell merely discloses the technical idea of identifying features supported by a first device and a second device. Newell merely determines whether or not the features are supported. Newell fails to disclose or suggest what operation is to be performed if supported features do not exist. For example, Newell does not disclose or suggest that if a device does not support a certain feature, information on another device which supports the feature is notified.

Moreover, the foregoing paragraphs of French merely disclose the technical idea that VPNIDs assigned to networks by an administrator are stored, unique VPNIDs are created by a VPNID creator, and an IP address is generated by a server on behalf of its client. Therefore, the combination of Newell and French neither discloses nor suggests the foregoing feature of Claim 13.

Claims 14, 15, 19, 20, 24, 26, 27, 29, 33, 48 and 57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Newell, French, and Morinaga. This rejection is respectfully traversed.

The invention as recited in Claims 19 and 20 detects whether or not there are converting sections corresponding to a plurality of first signal format types, generates a plurality of IP addresses corresponding to the first signal format types and a VPNID to a user's device if the converting sections exist, registers the VPNID, the IP addresses, and the first signal format types which are used by the user's device to which the VPNID and the IP addresses are added, and employs the converting section corresponding to

an IP address contained in a calling connection request from the user's devices for a communication following the calling connection request.

In this way, by adding a plurality of IP addresses to the user's device so that a signal format type corresponding to the IP address can be determined, the user does not have to notify the OVPN of the signal format type which the user uses, and thus the user can change the signal format simply by changing the IP address. Therefore, it is possible to simplify processes for changing the signal format type frequently (page 16, second paragraph, of the specification).

The Examiner points out the portions of Morinaga in the same manner as those with respect to Claims 1 and 2 in addition to the portions pointed out with respect to Claims 13. The Examiner also points out the portions of French with respect to an IP address and a VPNID in the same manner as those with respect to Claim 13.

However, as can be understood from the arguments with respect to Claim 13, the combination of the '692 reference, Newell, French, and Morinaga do not disclose or suggest the technical idea of adding "a plurality of" IP addresses corresponding to a plurality of first signal format types to the user's device, and the foregoing advantageous effect resulting from such a distinctive feature cannot be obtained from the combination of '692, Newell, French, and Morinaga.

The OVPN terminating device of Claim 27 detects whether or not a user's device is connected. If the user's device is connected, the OVPN terminating device adds an IP address and a VPNID to the user's device, receives a test signal from the user's device, determines the first signal format type, and retrieves a converting section corresponding to this signal format type. If the converting section exists, the OVPN

terminating device registers the added IP address and VPNID and the first signal format type information which is used by the user's device to which the VPNID and the IP address are added.

As a result, the OVPN terminating device can automatically determine a request for which signal should be connected to the OVPN using the test signal from the user's device, and thus it is possible to improve operability for the user (page 19, third paragraph, of the specification).

Regarding such a feature, the Examiner points out various portions of Newell, French, and Morinaga in the same manner as those with respect to Claims 13, 19, and 20 described above.

However, as can be understood from the foregoing arguments based on Claims 13, 19, and 20, neither the '692 reference, Newell, French, nor Morinaga, alone or combination, disclose or suggest the technical idea of the invention as recited in Claim 27 (e.g., receiving a test signal from the user's device to determine the type, and retrieving a converting section corresponding to the determined type).

Claims 43 and 46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Oguchi. This rejection is respectfully traversed.

Claim 43 has been amended so as to include the limitation recited in dependent Claim 46 and to conform to the disclosure of the corresponding twenty-first embodiment (e.g., page 72, last paragraph, to page 74, first paragraph, of the specification and FIGS. 38-40). Claim 46 has been canceled. Claims 44, 45, and 47 have been amended so as to conform to these amendments.

In the invention as recited in Claim 43, a plurality of converting sections provided in the collective converting device are commonly used by a plurality of optical cross connecting devices.

As a result, it is not necessary to dispose a converting section for performing: the converting operation; the encapsulating operation; and the de-encapsulating operation in the optical cross connecting devices. Therefore, it is possible to simplify the structure of an optical cross connecting device and an OVPN system in which a plurality of optical cross connecting devices are provided, with a reduced cost. Thus, it is possible to use the network resource efficiently.

Regarding current Claim 46, now incorporated into Claim 43, the Examiner points out paragraphs [0005] and [0019] of '692, and paragraphs [0065], [0067], [0083], [0085], and [0143] of Oguchi. However, as can be understood from the discussion related to independent Claim 1 and 2 (regarding Oguchi) and the discussion related to Claim 9 (regarding '692), the portions pointed out by the Examiner do not disclose or suggest the foregoing feature of the invention as recited in amended Claim 43.

Claims 21, 30, 49, 50, 52-54, and 56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Morinaga and French. This rejection is respectfully traversed.

The OVPN terminating device of Claim 49 receives, from a base point device which is disposed between a user's device and an OVPN, a notice that the user's device is connected to the base point device, and transmits an IP address and a VPNID which are allocated to the user's device to the base point device.

As a result, it is sufficient to newly allocate the IP address and the VPNID at the time the user's device is connected to the base point device, and thus it is possible to efficiently utilize IP address resources and VPNID resources.

Regarding such a feature, the Examiner points out column 9, lines 41-54, of Morinaga in addition to the portions of Morinaga in the same manner as those with respect to Claims 1 and 2 (i.e., column 5, line 60, to column 6, line 6, and column 7, lines 45-59, of Morinaga).

However, the former portion merely relates to the setting of data communication methods, and merely discloses that a gateway receives a calling signal and performs settings corresponding to parameters accompanied by ON flag. Additionally, the latter portion also merely relates to the setting of data communication methods.

Since the Examiner associates the gateway of Morinaga with the claimed OVPN terminating device, it is considered that a PBX of Morinaga, which is provided between terminals and the gateway, corresponds to the claimed base point device. However, the portions pointed out by the Examiner neither disclose nor suggest the technical idea of transmitting an IP address and a VPNID which are allocated to a terminal to the PBX.

Claims 58, 59, 64-66, and 69 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Miyabe (U.S. Pat. No. 7,024,113 B2; "Miyabe") and Oguchi. This rejection is respectfully traversed.

Claim 58 has been amended so as to conform to the twenty-sixth embodiment (FIG. 59) of the present application.

The base point device of Claim 58 multiplies (multiplexes) a plurality of optical wavelength signals which are used in a plurality of user's devices, transmits the multiplied optical wavelength signal to the OVPN, separates the multiplied optical wavelength signal which arrives from the OVPN, transmits the separated signals to the user's devices, and notifies the OVPN of wavelength information and information for the wavelengths which are transmitted under a multiplied condition so as to be used in the user's devices.

As a result, it is possible to use a transmission path efficiently, and to separate the wavelengths efficiently in the OVPN by utilizing the notified information (page 35, last paragraph, to page 36, first paragraph, of the specification).

Regarding such a feature, the Examiner points out column 11, lines 44-52, and column 12, line 63, to column 13, line 8, of Miyabe. Applicant notes that column 19 mentioned in the Office Action is not found in Miyabe. Taking the Examiner's assertion into consideration, Applicant assumes that column 19 should indicate column 11.

The former portion of Miyabe mentions a wavelength multiplexer and a wavelength demultiplexer. However, as shown in FIG. 19, Miyabe merely demultiplexes a wavelength-division multiplexed signal, supplies demultiplexed signals to an optical switch, and multiplexes signals from the optical switch. Therefore, the technical idea of Miyabe is quite different from the invention as recited in Claim 58 which performs multiplexing and separation between the user's device and the OVPN.

The latter portion of Miyabe merely discloses that an OXC5 notifies an OXC4, which is located immediately upstream the OXC5, of a wavelength which has been reserved for a new route. The wavelength notification of Miyabe is performed between

OXC's provided in a network, and no user devices are involved in the notification. Therefore, the technical idea of Miyabe is quite different from the invention as recited in Claim 58 in which the base point device disposed between the user's device and the OVPN notifies the information for the wavelengths, which are used by the user's devices, transmitted under a multiplied condition.

The invention as recited in Claims 64 and 65 mutually converts a series of serial signals according to a first signal format which are transmitted from a user's device and a plurality of parallel signals in an OVPN according to a second signal format.

As a result, it is possible to compensate a difference in transmitting speed of signals between the user and the OVPN (page 37, second paragraph, of the specification).

The Examiner points out the same portions of Miyabe as those with respect to Claim 58. However, since these portions of Miyabe merely disclose the matters explained above with respect to Claim 58, they neither disclose nor suggest even serial-to-parallel conversion and parallel-to-serial conversion, let alone the foregoing feature of Claims 64 and 65.

Claims 60-63 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Miyabe, Miller (U.S. Pat. No. 6,212,568 B1; "Miller"), and Oguchi (U.S. Pub. No. 2003/0041167 A1; "French"). This rejection is respectfully traversed.

The invention as recited in Claim 60 includes features similar to those of Claims 64 and 65. Therefore, the foregoing arguments based on Claims 64 and 65 can apply to Claim 60.

In addition to these features, the invention as recited in Claim 60 notifies the OVPN of information for topology of parallel signals and information that serial signals are converted to the parallel signals.

As a result, it is possible to transmit a plurality of parallel signals which were originally a series of serial signals as a group (page 37, lines 5-8, of the specification).

Regarding such a feature, the Examiner points out column 11, lines 4-11, of Miller. However, this portion of Miller merely mentions a flag indicating that the following multiple frames together comprise a super frame.

The portion pointed out by the Examiner fails to even mention serial-to-parallel conversion, let alone disclose or suggest the technical idea of the invention as recited in Claim 60 which informs the aforementioned two kinds of information.

Claim 62 includes features similar to those of Claim 58, Claims 64 and 65, and Claim 60. Moreover, the portions pointed out by the Examiner with respect to Claim 62 are the same as those pointed out with respect to Claims 58, 64, 65, and 60. Therefore, the foregoing arguments based on Claims 58, 64, 65, and 60 apply equally to Claim 62.

Claims 70-74 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the '692 reference in view of Oguchi and Tosey (U.S. Pat. No. 6,392,990 B1; "Tosey"). This rejection is respectfully traversed.

Claims 70, 71, and 73, as well as Claims 72 and 74, which are dependent thereon, have been cancelled.

NEW CLAIMS

Claims 75 and 76 are newly added.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: May 26, 2009

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